

Advanced  
Compliance Laboratory

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## ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

WIRELESS DOOR BELL TRANSMITTER  
MODEL: SC321T  
FCC ID: QZHSCILSC321T

*November 11, 2004*

<p>This report concerns (check one): Original grant <input checked="" type="checkbox"/> Class II change <input type="checkbox"/></p> <p>Equipment type: <u>Low Power Intentional Radiator</u></p>	
<p>Deferred grant requested per 47 CF 0.457(d)(1)(ii)?      yes <input type="checkbox"/>      no <input checked="" type="checkbox"/></p> <p style="padding-left: 150px;">If yes, defer until: _____ (date)</p> <p>Company agrees to notify the Commission by _____ (date)</p> <p>of the intended date of announcement of the product so that the grant can be issued on that date.</p>	
<p>Transition Rules Request per 15.37?      yes <input type="checkbox"/>      no <input checked="" type="checkbox"/></p> <p>If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR [10-1-90 Edition] provision.</p>	
<p>Report prepared for:</p> <p>Report prepared by:</p> <p>Report number:</p>	<p>Styling City Industries Ltd.</p> <p>Advanced Compliance Lab</p> <p>0048-041108-01</p>



The test result in this report IS supported and covered by the NVLAP accreditation

## Table of Contents

<b>Report Cover Page.....</b>	<b>1</b>
<b>Table of Contents .....</b>	<b>2</b>
<b>Figures.....</b>	<b>3</b>
<b>1. GENERAL INFORMATION .....</b>	<b>4</b>
<b>1.1 Verification of Compliance .....</b>	<b>4</b>
<b>1.2 Equipment Modifications.....</b>	<b>5</b>
<b>1.3 Product Information.....</b>	<b>6</b>
<b>1.4 Test Methodology.....</b>	<b>6</b>
<b>1.5 Test Facility .....</b>	<b>6</b>
<b>1.6 Test Equipment.....</b>	<b>6</b>
<b>1.7 Statement of the Document Use.....</b>	<b>7</b>
<b>2. PRODUCT LABELING.....</b>	<b>8</b>
<b>3. SYSTEM TEST CONFIGURATION .....</b>	<b>9</b>
<b>3.1 Justification .....</b>	<b>9</b>
<b>3.2 Special Accessories.....</b>	<b>9</b>
<b>3.3 Configuration of Tested System .....</b>	<b>9</b>
<b>4. SYSTEM SCHEMATICS .....</b>	<b>12</b>
<b>5. RADIATED EMISSION DATA .....</b>	<b>13</b>
<b>5.1 Field Strength Calculation .....</b>	<b>13</b>
<b>5.2 Test Methods and Conditions .....</b>	<b>13</b>
<b>5.3 Test Data.....</b>	<b>14</b>
<b>5.4 Occupied Bandwidth .....</b>	<b>15</b>
<b>6. PHOTOS OF TESTED EUT .....</b>	<b>16</b>

## Figures

**Figure 2.1 FCC ID Label.....8**

**Figure 2.2 Location of Label on Back of the EUT .....8**

**Figure 3.1 Radiated Test Setup, Position X.....10**

**Figure 3.2 Radiated Test Setup, Position Y .....10**

**Figure 3.3 Radiated Test Setup, Position Z .....11**

**Figure 4.1 EUT Schematics .....12**

**Figure 5.1 Bandwidth Plot .....14**

**Figure 6.1 Front View.....17**

**Figure 6.2 Rear View .....18**

**Figure 6.3 Inside View, Cover Opened .....19**

**Figure 6.4 Component Side.....20**

**Figure 6.5 Foil Side .....21**

## 1. GENERAL INFORMATION

### 1.1 Verification of Compliance

EUT: WIRELESS DOOR BELL TRANSMITTER

Model: SC321T

Applicant: Styling City Industries Ltd.  
Unit 418, International Plaza, 20 Sheung Yuet Road  
Lowloon Bay, Kowloon, Hong Kong

Test Type: FCC Part 15C CERTIFICATION

Result: PASS

Tested by: ADVANCED COMPLIANCE LABORATORY


Test Date: November 11, 2004

Report Number: 0048-041108-01

The above equipment was tested by Compliance Laboratory, Advanced Technologies, Inc. for compliance with the requirement set forth in the FCC rules and regulations Part 15 subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Advanced Compliance Lab. Doc. No. 0048-01-01.

	Prob. Dist.	Uncertainty(dB) 30-1000MHz	Uncertainty(dB) 1-6.5GHz	Uncertainty(dB) Conducted
Combined Std. Uncertainty $u_c$	norm.	$\pm 2.36$	$\pm 2.99$	$\pm 1.83$

  
\_\_\_\_\_  
Wei Li  
Lab Manager  
Advanced Compliance Lab

Date: November 11, 2004

## 1.2 Equipment Modifications

N/A

### 1.3 Product Information

#### System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	WIRELESS DOOR BELL TRANSMITTER SC321T	QZHSCILSC321T	
Housing	PLASTICS		
Power Supply	3V DC Battery		
Operation Freq.	434 MHz		
Device Type	Low Power Periodical Intentional Radiator		

(1) EUT submitted for grant.

### 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-2001 at an antenna to EUT distance of 3 meters.

### 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at Hillsborough, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

### 1.6 Test Equipment

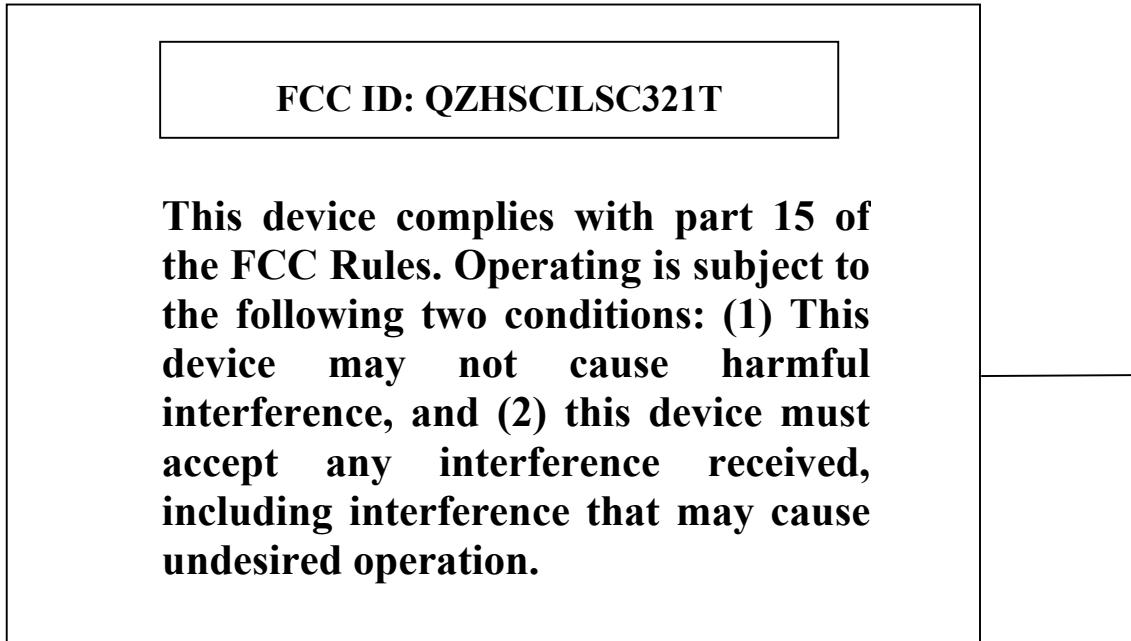
Manufacture	Model	Serial No.	Description	Last Cal dd/mm/y	Cal Due dd/mm/y
Hewlett-Packard	HP8546A	3625A00341	EMI Receiver	12/01/04	12/01/05
EMCO	3104C	9307-4396	20-300MHz Biconical Antenna	12/02/04	12/02/05
EMCO	3146	9008-2860	200-1000MHz Log-Periodic Antenna	09/02/04	09/02/05
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	03/07/04	03/07/05
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	03/07/04	03/07/05
EMCO	6502	2665	10KHz-30MHz Active Loop Antenna	27/02/04	27/02/05
EMCO	3115	4945	Double Ridge Guide Horn Antenna	15/09/04	15/09/05

All Test Equipment Used are Calibrated Traceable to NIST Standards.

**1.7 Statement for the Document Use**

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

## 2. PRODUCT LABELING



**Figure 2.1 FCC ID Label**



**Figure 2.2 FCC ID Label Location**



### **3. SYSTEM TEST CONFIGURATION**

#### **3.1 Justification**

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT.

#### **3.2 Special Accessories**

N/A

#### **3.3 Configuration of Tested System**

Figure 3.1 to Figure 3.3 illustrate this system, which was tested standing along.



**Figure 3.1 Radiated Test Setup-Position X**



**Figure 3.2 Radiated Test Setup-Position Y**



**Figure 3.3 Radiated Test Setup-Position Z**

### 4. SYSTEM SCHEMATICS

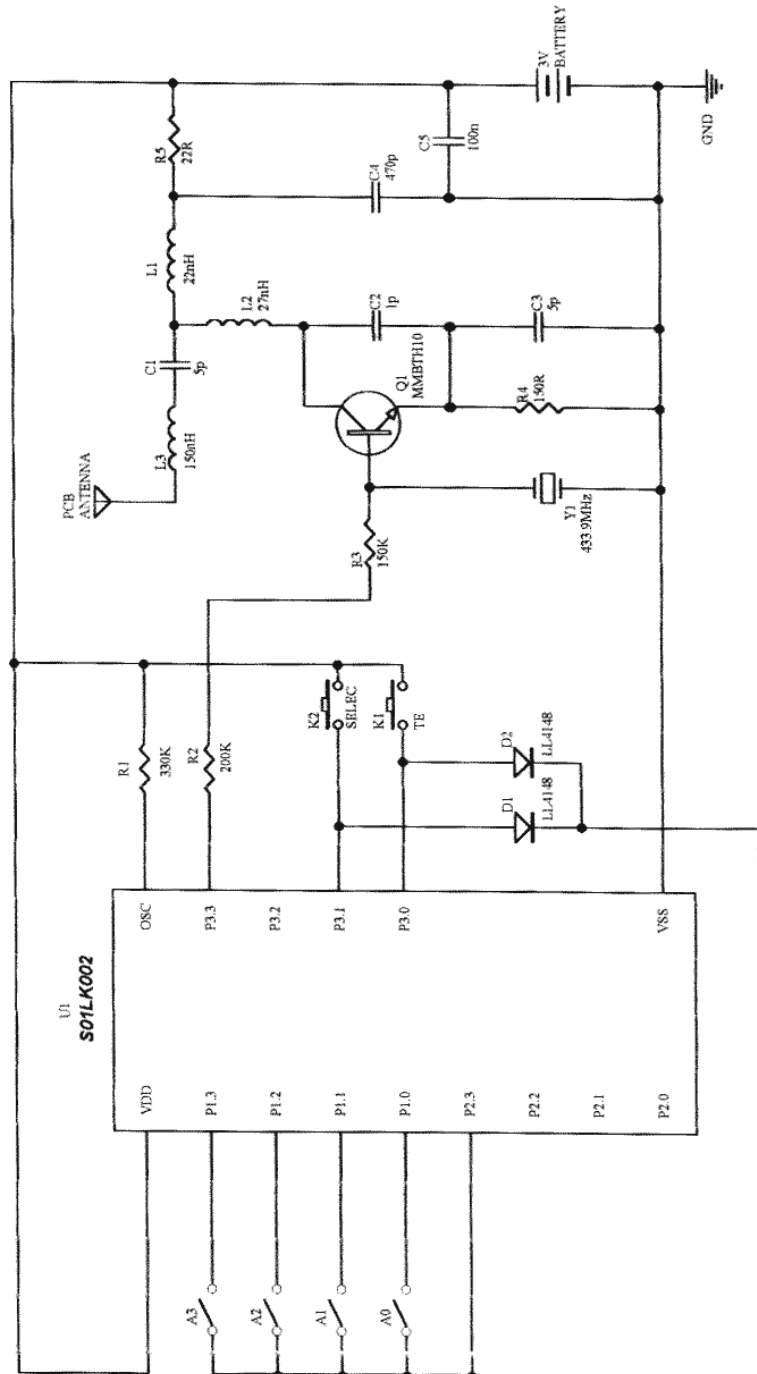


Figure 4.1 System Schematics

## 5. RADIATED EMISSION DATA

### 5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA + AF + CF + AG$$

where FS: Corrected Field Strength in dB $\mu$ V/m

RA: Amplitude of EMI Receiver before correction in dB $\mu$ V

AF: Antenna Factor in dB/m

CF: Cable Attenuation Factor in dB

AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

### 5.2 Test Methods and Conditions

The initial step in collecting radiated data is a EMI Receiver scan of the measurement range below 30MHz using peak detector and 9KHz IF bandwidth / 30KHz video bandwidth. For the range 30MHz - 1GHz, 120KHz IF bandwidth / 120KHz video bandwidth are used. Both bandwidths are 1MHz for above 1GHz measurement. Up to 10<sup>th</sup> harmonics were investigated.

### 5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

Test Personnel:



Typed/Printed Name: Edward Lee

Date: November 11, 2004

**Radiated Test Data****Radiated Test Data**

Frequency (MHz)	Polarity [H or V], Position [X,Y,Z]	Height (m)	Azimuth (Degree)	Peak Reading (dB $\mu$ V/m)	FCC 3m Limit (dB $\mu$ V/m)	Difference from limit (dB)
434	H-X <sup>(1)</sup>	1.3	10	74.6	80.8 <sup>(3)</sup>	-6.2
868	H-X	1.3	45	47.9	60.8 <sup>(4)</sup>	-12.9
1302	H-X	1.3	10	43.2	54.0 <sup>(2)</sup>	-10.8
434	H-Y	1.2	10	77.0	80.8	-3.8
868	H-Y	1.2	0	52.7	60.8	-8.1
1302	H-Y	1.2	0	48.2	54.0	-5.8
1736	H-Y	1.2	350	41.8	60.8	-19.0
434	H-Z	1.3	10	77.5	80.8	-3.3
868	H-Z	1.3	340	52.1	60.8	-8.7
1302	H-Z	1.3	40	45.5	54.0	-8.5
1736	H-Z	1.3	340	41.9	60.8	-18.9
434	V-X	1.1	10	78.8	80.8	-2.0
868	V-X	1.1	10	57.9	60.8	-2.9
1302	V-X	1.1	10	48.4	54.0	-5.6
1736	V-X	1.1	0	42.3	60.8	-18.5
434	V-Y	1.2	300	71.3	80.8	-9.5
868	V-Y	1.2	350	54.1	60.8	-6.7
1302	V-Y	1.2	45	45.9	54.0	-8.1
1736	V-Y	1.2	45	44.5	60.8	-16.3
434	V-Z	1.2	270	70.3	80.8	-10.5
868	V-Z	1.2	280	51.2	60.8	-9.5
1302	V-Z	1.2	300	43.7	54.0	-10.3

(1) See Figure 3.1, 3.2 and 3.3 for definition of position X, Y, Z.

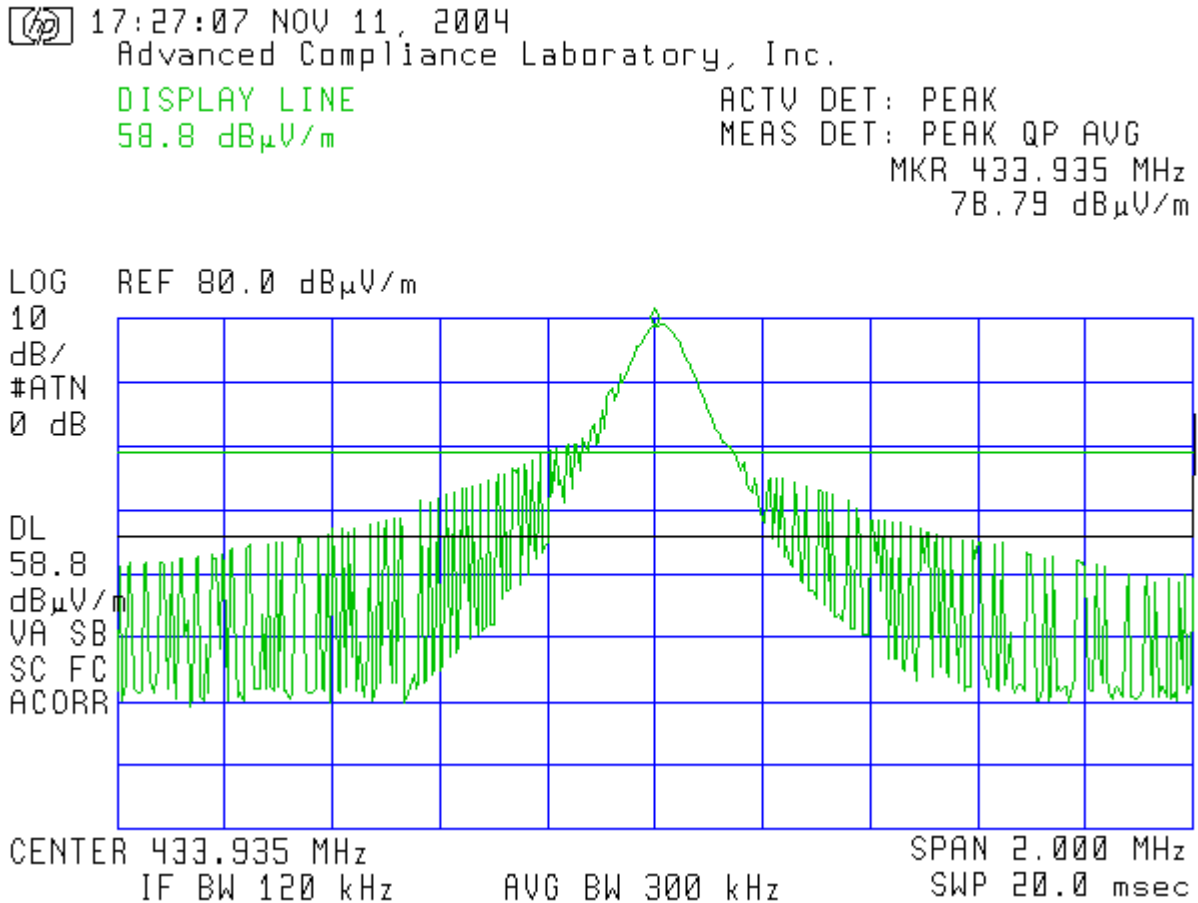
(2) Restricted band per 15.205.

(3) Fundamental limit is 3750-12500 microvolts/meter linear interpolations per 15.231 .

(4) Spurious limit is 375-1250 microvolts/meter linear interpolations per 15.231.

### 5.4 Occupied Bandwidth

The bandwidth of the emission shall be no wider than 0.25% of the center frequency, in this case, 1.085MHz(434x0.25%). Bandwidth is determined at the points 20dB down from the modulated carrier. Figure 5.1 shows the occupied bandwidth plot.



**Figure 5.1 Occupied Bandwidth**

## **6. PHOTOS OF TESTED EUT**

The following photos show the inside details of the EUT.